

## NOTES ON THE HAWK MOTHS AND BUTTERFLIES (LEPIDOPTERA) OF THE COCOS (KEELING) ISLANDS, INDIAN OCEAN

R.B. LACHLAN

Entomology Department, Australian Museum, 6 College St, Sydney, NSW 2010

### Abstract

Records are provided for six species of hawk moths and eight species of butterflies from the Cocos (Keeling) Islands, including two newly recorded species, *Hippotion rosetta* (Swinhoe) (Sphingidae) and *Nacaduba biocellata biocellata* (C. & R. Felder) (Lycaenidae). Notes on abundance are included.

### Introduction

The Cocos (Keeling) Islands are an external Territory of Australia and are situated in the Indian Ocean between 11°49'-12°12'S and 96°49'-96°56'E, about 2765 km north-west of Perth, Western Australia and 1100 km south-west of the western tip of Java, Indonesia. The nearest land mass is Christmas Island, about 950 km ENE. Two atolls make up the group of 27 islands. North Keeling Island is a National Park, uninhabited and approximately 24 km north of the southern, horseshoe-shaped group of islands. The total land area is only about 14 km<sup>2</sup> and no part of any island is higher than 6 m above sea level.

The islands are heavily covered by coconut palms (*Cocos nucifera*) and are generally fringed on their seaward sides by *Messerschmidia*, *Scaevola taccada*, *Hibiscus tiliaceus*, *Cordia subcordata*, *Calophyllum inophyllum*, *Guettarda speciosa*, *Morinda citrifolia* and *Pisonia grandis*. At least 43 indigenous plant species have been recognised. (Renvoize 1979).

This survey was carried out between 9 December 2004 and 6 January 2005; a total of 29 days and 28 nights. All the islands were very dry and no rain of note had fallen for several weeks prior to the survey period. Almost no rain was recorded during the survey. Voucher specimens are in the author's collection; some duplicates are held by the Australian Museum, Sydney.

### Discussion

Several notable attempts have been made previously to document the Lepidoptera of the Cocos (Keeling) Islands. Wood-Jones (1909) recorded some 32+ species during a 15 months stay on the islands between 1905 and 1906, including four species of hawk moths, *Agrius convolvuli* (Linnaeus), *Cephonodes picus* (Cramer), *Macroglossum corythus* Walker and *Hippotion velox* (Fabricius), and five species of butterflies, *Hypolimnys bolina* (Linnaeus), *H. misippus* (Linnaeus), *Junonia villida* (Fabricius), *Vanessa kershawi* (McCoy) and *Danaus petilia* (Stoll).

T.G. Campbell made extensive Lepidoptera collections in 1952 and 1964, yet collected just three species of butterflies, one of which, *Euploea core corinna*

(W.S. Macleay), was a new record, and three species of hawk moths, *A. convolvuli*, *C. picus* and *M. corythus*. Specimens from these surveys were deposited in the Australian National Insect Collection, CSIRO, Canberra. (Holloway 1982).

In July 1978, M. and F. Jowett collected on West Island for two weeks with a small light trap and recorded one additional species of hawk moth, *Hippotion boerhaviae* (Fabricius) (Holloway 1982). D'Abrera (1986) queried the Cocos Islands as the type locality for the lycaenid *Catopyrops ancyra exponens* (Fruhstorfer) and did not illustrate it. Braby (2000) recorded this species from the Cocos (Keeling) Islands without comment and also did not illustrate it. This listing brought the total of recorded butterfly species to seven.

Despite the fact that the present survey focused entirely on the hawk moths and butterflies of these islands, only three species of hawk moths and five species of butterflies were collected. No other species were sighted. The full list of species collected is given in Table 1, together with notes on abundance. One species of hawk moth, *Hippotion rosetta* (Swinhoe), and one species of butterfly, *Nacaduba biocellata biocellata* (C. & R. Felder), are newly recorded. *N. b. biocellata* was only collected from one very small area on Home Island and was not seen anywhere else on that island or on any of the other islands. The specimens collected were compared with photographs of the types of *N. b. baliensis* Tite from Indonesia, but they are not this subspecies and are indistinguishable from specimens of *N. b. biocellata* from Australia, including NW Western Australia.

**Table 1.** List of species of hawk moths and butterflies collected on the Cocos (Keeling) Islands from 9 December 2004 to 6 January 2005. An asterisk (\*) indicates a new record for the islands.

Species	Notes
HAWK MOTHS	
Sphingidae	
<i>Agrius convolvuli</i> (Linnaeus)	One male
<i>Cephonodes picus</i> (Cramer)	24 males, five females
<i>Hippotion rosetta</i> (Swinhoe) *	Four males, one female
BUTTERFLIES	
Nymphalidae	
<i>Hypolimnas bolina nerina</i> (Fabricius)	Six males, one female
<i>Junonia villida</i> (Fabricius)	Common
<i>Vanessa kershawi</i> (McCoy)	One female
<i>Euploea core corinna</i> (W.S. Macleay)	Very common
Lycaenidae	
<i>Nacaduba biocellata biocellata</i> (C. & R. Felder) *	30 males, three females

It is interesting to note that seven of the eight recorded butterfly species are Australian, despite the islands being much closer to Indonesia. The presence of the only non-Australian taxon, *Catopyrops ancyra exponens*, remains unconfirmed. Unlike Christmas Island, no endemic butterfly species has yet been recorded.

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